



***Battery and Battery Acid  
Maintenance Program***

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## ***Who Are We?***

North American Bioindustries (NAB) is a manufacturer of environmentally safe industrial cleaning products. The focus of this document is to educate our customers on the proper use of our product line for battery cleaning and neutralization and battery acid neutralization.

Industry relies heavily on the performance of industrial batteries. Whether required to power electric forklifts, vehicles or golf carts, industrial batteries are depended upon to provide the power needed for products and services. Scheduled routine maintenance will maintain a level of optimal performance, which is crucial to getting the proper charge and desired life out of a battery.

Producers of lead acid batteries emphasize the importance of keeping the battery casing, terminals and connectors free of acid, corrosion and dirt. In conjunction with regular maintenance requirements on many of the industrial batteries, NAB has developed a simple ***1-2-3-Step Approach*** to neutralize and clean batteries and ALL battery maintenance applications.

NAB's battery maintenance product line is proven to be highly effective and has passed rigorous standard testing required by Industry standards.

## ***NAB's 1-2-3-Step Approach To Battery and Battery Acid Maintenance***

### **Why Keep Batteries Free of Dirt, Oil and Electrolytes?**

It is important to keep batteries clean to maintain their designed performance level. Performance damage to the battery begins once dirt, oil or electrolytes have accumulated on a battery's surface. A power trickle will result, passing the current through alternate modes. This will slowly exhaust the battery before optimal length of charge is met. Dirt, oil and electrolytes also hold a conductive surface charge, which have the potential to shock or burn. Under extreme conditions, a strong enough surface charge can buildup heat and cause a battery to ignite or explode.

Establishing a routine maintenance program will assure that the battery's surface is free and clear of any battery acid, dirt or oil. The result will help to achieve optimal performance from the battery.

Oil and dirt will redevelop after maintenance more quickly if traces remain on a battery's surface. NAB has developed a product that releases dirt, oil and corrosion, which can then be completely rinsed away. Perform the white glove test and notice the NAB difference!

#### **Step # 1: Battery Acid Cleaning and Neutralizing**

*To clean and remove dirt, oil and electrolytes on a battery's surface, use NAB's Battery Acid Cleaner & Neutralizer. Liberally spray the entire battery allowing adequate dwell time to complete neutralization. The product will change color indicating that the product has been neutralized. Then rinse with a hose or pressure washer. Allow battery to completely dry before using.*

*Establishing a routine maintenance program will assure that the battery's surface is free and clear of any battery acid, dirt or oil. The result helps to achieve optimal performance from the battery.*

### **What to Do in Case of a Leak or Spill**

Battery acid is a major health hazard according to Occupational Safety & Health Administration (OSHA) because of its highly corrosive characteristics. Spills and leaks are never planned but do happen even when all the necessary precautions are taken. To minimize leaks and spills, always handle batteries with care and have documentation of the preventative maintenance records. Use proper personal protective equipment (PPE),

set batteries down gently and use a battery gripper to transport batteries. Keep all battery features and accessories in proper working condition.

## **Step # 2: Battery Acid Neutralizing**

*On an acid spill, leak or any “tough to neutralize application,” slowly pour or spray **NAB’s Battery Acid Neutralizer** onto the acid. Continually check the pH and add the product until desired pH is met. (Check with your local municipality before disposing any byproduct down the drain.)*

**NAB’s Battery Acid Neutralizer** contains 100% active neutralizing ingredients and serves as a multifunctional product for floor spills, battery leaks, tough to neutralize areas and situations and battery wash systems. A pH of 2:12 is generally the standard municipal water discharge range. **NAB’s Battery Acid Neutralizer** is a buffered source of alkalinity with a pH of approximately 9:12. (Caustic soda is frequently used in battery wash systems and may cause physical damage to the plastic/rubber casing of the battery. When overused, caustic soda may create a byproduct with a pH of greater than 12.)

## **General Industry Practice**

When a spill occurs, the general Industry practice is to use an absorbent product to neutralize and absorb battery acid.

*For a large acid spill, form a dike to prevent acid from spreading and fill in toward the middle with an absorbent product to prevent spreading. Allow five minutes for the product to absorb and neutralize battery acid. (Properly dispose of materials according to local regulations.)*

## **The Downside of Using Absorbents — Our Remedy**

Absorbent products leave behind active battery acid in the pores and cracks of a floor. The white chalky marks that remain after an absorbing product is used indicate active battery acid. Battery acid left behind can start etching small holes in the cement and, in time, the floor will need to be replaced.

*To remove the white chalky marks, use **NAB’s Battery Acid Neutralizer**. Because **NAB’s Battery Acid Neutralizer** is a liquid, it will seep into the pores and cracks of the cement and neutralize the remainder of the battery acid that absorbents leave behind.*

## **The Final Step to Cleaning a Floor after a Battery Cleaning or a Battery Acid Spill**

The final step is to properly clean the floor. When floor scrubbers are used in a Battery Room, they often pick up battery acid, which causes serious problems with the internal workings of a floor scrubber.

### **Step #3: Cleaning Up after All Battery Acid is Neutralized**

*Once the battery acid is completely neutralized, use NAB's **Citrus Cleaner** in a floor scrubber or bucket with a mop to clean the floor. Add about 6 oz. of regular concentrate per gallon of water. Use a mop, power washer or floor scrubber to clean up neutralized battery acid on floors. NAB's **Citrus Cleaner** is a neutral pH product that is safe to use on industrial flooring.*

## ***What Cleaning Products to Avoid***

There are still companies which use “makeshift” products for their neutralizing needs. The most common “makeshift” products and the reasons why they do not work are listed below:

- **Baking Soda** - A common product that is frequently used in Industry is baking soda. Neutralizing acid on batteries with baking soda forms a conductive paste that won't rinse free. After repetitive use, the paste can harden between the cells of the battery. Once dry, the hardened paste is another “alternate mode” for electric current to create a short, shock, fire or explosion.
- **Water** - A common misconception is that enough water will neutralize battery acid. In order for neutralization to occur, an acid and a base must react together.
- **Caustic Soda** - Many of the neutralizers and cleaners on the market contain caustic soda. When caustic soda is applied to battery acid, an exothermic reaction “spit” will occur.
- **Alcohol and Petroleum** - The physical properties that perform the cleaning function in many of the neutralizing cleaners consist of glycol ethers, alcohol or petroleum-based products. Products with these cleaning agents often warp and crack the battery casing, especially on Poly and SAN plastic jars. In addition, alcohol and petroleum based products can be flammable and potentially increase worker exposure issues.

## *Sensitivity Testing*

Many of the reserved power batteries have these chemical-sensitive plastic cases, and the manufacturer's warranty will not cover damage caused by any cleaners used on the market. ***NAB's Battery Acid Neutralizing Line*** has been tested on the most sensitive plastics found in the Industry — Poly and SAN plastic jars. The test was to submerge both a Poly and a SAN plastic jar in each of our neutralizing products for 120 hours (5 days). **The results showed no physical damage to either jar!**

## *Contact Us*

We welcome additional comments or questions regarding our product line. Visit us at: <http://www.NorthAmericanBio.com> or call us at (414) 778-1490.